RAMA UNIVERSITY

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FACULTY OF ENGINEERING & TECHNOLOGY

Electrical Machine-ii

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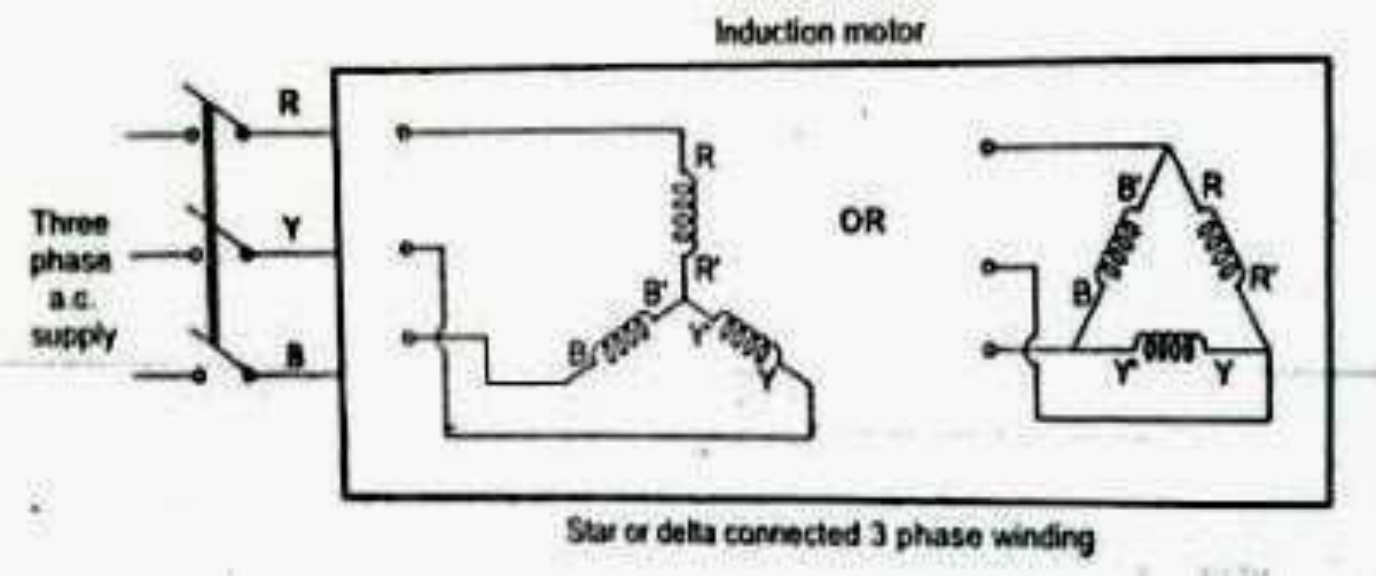
INDUCTION MOTOR

Rotating Magnetic Field (R.M.F)

- has constant amplitude
- but keeps on rotating continuously in a plane with a certain speed.
- Is produced with the help of three phase stationary windings
- Current winding produces the magnetic field.
- Due to the interaction of the three fluxes produced in the windings, RMF is produced without physically rotating the rotor.

Circuit diagram for three phase induction motor



Production of RMF:

- The three phase windings are displaced from each other by 120° e. The windings are supplied by a balanced three phase ac supply.
- The three phase currents flow simultaneously through the windings and are displaced from each other by 120° electrical.
- Each alternating phase current produces its own flux which is sinusoidal. So all three fluxes are sinusoidal and are
- separated from each other by 120°.
- If the phase sequence of the windings is R-Y-B, then mathematical equations for the instantaneous values of the three fluxes ΦR , ΦY ,ΦB can be written as,
- $\Phi R = \Phi m \sin(\omega t)$
- $\Phi Y = \Phi m \sin(\omega t - 120)$
- $\Phi B = \Phi m \sin(\omega t - 240)$